MEDITERRANEAN FEVER.[1]

THE reports of the commission for the investigation of Mediterranean fever, part iv., recently issued, contains a number of important papers. It is shown that in 86 per cent. of patients the *Micrococcus melitensis* is present in the peripheral blood, but usually not in large numbers (Staff-Surgeon Gilmour, R.N.), that it can be recovered from most of the organs and tissues *post mortem*, and from the urine, but not from the saliva (Captain Kennedy, R.A.M.C.). A critical examination of the blood for the agglutination reaction, by Fleet-Surgeon Bassett-Smith, R.N., shows that the blood in 148 cases, other than Mediterranean fever, gave an agglutination reaction only in four. The four latter had recently returned from Malta, and, though suffering from other affections at the time, had had the fever. The agglutination test is therefore perfectly trustworthy. Three papers deal with the possible propagation of the disease by insects. Mosquitoes, *Culex pipiens* and *Stegomyia fasciata*, were proved to be capable of carrying infection; in one case it was highly probable that a human being had been infected in this way, and experimentally one monkey was thus infected (Major Horrocks and Captain Kennedy). In view of the observations recorded in a previous report of the natural infection of goats with the *M. melitensis*, the further investigations in this direction are of great interest. Major Horrocks and Captain Kennedy find that 41 per cent. of the goats in Malta are infected, and that 10 per cent. supplying milk excrete the *M. melitensis* in their milk, and monkeys and goats can be infected by feeding with the infected milk. Cows, bullocks, mules, and in one instance a dog, are other animals proved occasionally to be infected. Like goats, cows may transmit the micrococcus in their milk (Staff-Surgeon Shaw, R.N., and Captain Kennedy). These results suggest that a very important source of human infection is from domestic animals, particularly *viâ* milk. Ambulatory cases in man and the excretion of the micrococcus in the urine are also sources by which infection may be transmitted both to man and animals.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

AT the University of Messina, Profs. G. Bagnera and E. Bortolotti have been appointed to chairs for higher analysis and calculus respectively.

AT the annual graduation ceremonial of the University of St. Andrews, on Tuesday, the honorary degree of LL.D. was conferred upon Dr. A. C. L. G. Günther, F.R.S., Prof. J. Cook Wilson, professor of logic in the University of Oxford, and Prof. A. H. Young, professor of anatomy in Victoria University, Manchester.

AT Lehigh University a course in electrometallurgy has been established. In its main outline it is similar to the course in metallurgy, but differs from it in omitting assaying and geology. The time thus gained is devoted to electrical engineering. There are thus two courses of four years each offered in the department of metallurgy.

SOME interesting data relating to the heating of university buildings are contained in a paper by Mr. H. W. Spangler in the Journal of the Franklin Institute of Philadelphia (vol. clxi., No. 3), in which he describes the system of heating and lighting the dormitories of the University of Pennsylvania from a central station about 1200 feet away.

IN addition to the Clift-Courtauld and Pfeiffer scholarships to be awarded in June, the council of Bedford College for Women offers a Deccan scholarship in science, value 60*l.*, for three years, on the result of the entrance scholarships examination. The scholarship will be awarded only to candidates who wish to qualify themselves to earn a living, and cannot obtain their university education without pecuniary help.

A PRIVATE view of the exhibition of students' work will be held at the Borough Polytechnic Institute on April 7. In view of the attention which is being directed to the work done on the Continent and in America in the direction of industrial training for apprentices, many men of science interested in educational problems may be glad to learn more of the work of an institute which has made industrial training, combined with a good educational foundation, one of its strongest features.

A PRELIMINARY meeting in connection with the second International Congress on School Hygiene, to be held in London in August, 1907, was held at the University of London on March 30. Sir Lauder Brunton, F.R.S., president of the congress, announced that French educationists and medical men have determined to do all in their power to make the congress in London a complete success, and other countries have taken the matter up. A gratifying reception has been accorded to the idea of an international congress both in Canada and in South Africa, and it is hoped that at the congress there will be a thoroughly representative gathering, not only of the colonies, but of every civilised country in the world. The congress, Sir Lauder Brunton said, promises to be one of the largest and most important ever held in London. Resolutions were adopted approving the idea of holding the second congress in London, asking the King to extend his Royal patronage to the congress, approving the steps already taken to initiate the arrangements for the congress, and inviting the cooperation of educational and municipal authorities, societies, and other representative bodies interested in education and the health and development of children during school life.

THE annual dinner of the Bristol University College Colston Society was held on March 30. The president, Mr. J. W. Arrowsmith, announced the receipt of a cheque for 500*l.* from Lord Strathcona, who was unable to attend. He added that for the past six years an anonymous donor has sent the college 1000*l.* annually for its sustentation fund. The Hon. Mrs. Whittuck, of Bath, has offered 1500*l.* to form part of the endowment of a chair of economic science, provided the council of the college sees its way to establish such a chair. It has been determined to take up in earnest the task of establishing a university for Bristol, and a committee has been formed, covering the counties of Wiltshire, Somerset, and Gloucestershire. Lord Winterstoke has offered 10,000*l.*, Mr. J. S. Fry 10,000*l.*, and Sir Frederick Wills and Mr. F. J. Fry 5000*l.* each, thus making up 30,000*l.* Altogether from 150,000*l.* to 200,000*l.* are wanted. Mr. Whitelaw Reid, the United States Ambassador, and Mr. Birrell, President of the Board of Education, both responded to the toast of "Our Guests." Mr. Reid described American experience in the founding of universities. The people of the United States began by copying Oxford and Cambridge, the only two English universities in 1833; but in time they found that the demands of a new people, and of a continent that had to be subdued to the uses of civilisation, called more and more for some higher education of a different kind. Thus while the great English schools still adhered chiefly to the humanities, theirs began a divergence, which every year found more decided, towards science and its applications. The most notable tendency as yet in recent higher educational development in America is towards scientific and technological study with a specialisation always growing more precise, if not also more narrow, in reference to the student's intended pursuits in life. After describing the development of schools and institutions of higher education since the Civil War, Mr. Reid went on to say that none of these schools has money enough, though many of them have considerable amounts. First, of course, stands the Leland Stanford with its princely endowment, from one man and his wife, of between seven and eight million pounds. Next comes Columbia with more than six million pounds, then Harvard with about five and a half millions, Chicago with nearly four millions, and Cornell with nearly three. The great work of Yale has been done with true Connecticut

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[1] "Reports of the Commission appointed by the Admiralty, the War Office, and the Civil Government of Malta for the Investigation of Mediterranean Fever, under the Supervision of an Advisory Committee of the Royal Society." Part iv. Pp. 187. (London: Harrison and Sons, 1906.) Price 3*s.* 6*d.*

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thrift, since they cannot yet count up quite two millions of pounds; and that of Johns Hopkins, briefer but also great, has been achieved with an endowment of little above one million. The Carnegie Institute at Washington has two millions. Many of the other institutions of higher learning are far less adequately provided for; but in general it may be said that the Republic is more liberal with its schools than with anything else. In no other field do its private citizens display more generosity, and as for public expenditure, to give but one illustration, it may be mentioned that the single State of New York spent in 1905 from the public treasuries, State and local, for its schools in the neighbourhood of nine million pounds.

SOCIETIES AND ACADEMIES.

London.

Royal Society, December 7, 1905.—"On the Influence of Bias and of Personal Equation in Statistics of Ill-defined Qualities: an Experimental Study." By G. Udny **Yule.** Communicated by Prof. O. Henrici, F.R.S.

To attempt to answer the question raised by the results of the preceding investigation an experiment was conducted, by asking observers to classify under such headings as "light," "medium," "dark," scraps of photographic paper printed to different depths of colour. The results show that (1) personal equation in the use of such terms is very large indeed; (2) the majority of observers tend to return an excess of pairs of tints of the same name; (3) the amount of this excess is increased when different observers' results are pooled, owing to their varying personal equations; (4) but it is markedly less than the excess of the number of homonymous pairs (as compared with a normal distribution) in several of the tables for inheritance of qualities. The answer to the question remains therefore somewhat indefinite, and further investigation is required.

Chemical Society, March 15.—Prof. R. Meldola, F.R.S., president, in the chair.—The interaction of well-dried mixtures of hydrocarbons and oxygen: W. A. **Bone** and G. W. **Andrew.** The results of experiments carried out chiefly with well-dried mixtures of ethylene and oxygen indicate that steam is not essential to the combustion of hydrocarbons.—The explosive combustion of hydrocarbons: W. A. **Bone** and J. **Drugman.** The results of this research indicate that there is no essential difference between the slow and rapid combustion of a hydrocarbon, and that explosive combustion probably involves the initial formation of unstable hydroxylated molecules, which subsequently undergo thermal decomposition into simpler products.—The occurrence of methane among the decomposition products of certain nitrogenous bases as a source of error in the estimation of nitrogen by the absolute method: P. **Haas.** The author confirms and extends to a large number of substances Dunstan and Carr's observation that in the Dumas method of determining nitrogen in organic substances an error may be caused by the inclusion of marsh gas in the gas collected and measured.—Studies on comparative cryoscopy, part iv., the hydrocarbons and their halogen derivatives in phenol solution: P. W. **Robertson.**—The displacement of acid ions, part i.: A. F. **Joseph.** The author describes his investigations on the quantitative action of hydrochloric acid on the nitrates of potassium, sodium, and strontium, and of nitric acid on the corresponding chlorides.—Additive compounds of arylamines with aromatic nitro-derivatives: C. L. **Jackson** and L. **Clarke.** 4 : 6-Dibromo-1 : 3-dinitrobenzene dimethylaniline, 4-chloro-1 : 3 : 5-tribromo-2 : 6-dinitrobenzene dimethylaniline and other similar additive products are described.—Influence of substituents in the trinitrobenzene molecule on the formation of additive compounds with arylamines: J. J. **Sudborough** and N. **Picton.** The formation of additive compounds between α- or β-naphthylamine and *s*-trinitrobenzene derivatives is completely inhibited by the introduction of three methyl-, two methoxy-, or three bromo-radicals into the trinitrobenzene molecule.—The relations between absorption spectra and chemical constitution, part iv., the re-activity of the substituted quinones: A. W. **Stewart** and E. C. C. **Baly.** An examination was made of the absorption spectra of various quinones, and conclusions are drawn as to the conditions in which these substances exist.—The constitution and properties of acyl thiocyanates: J. **Hawthorne.**—A mode of formation of aconitic and citrazinic acids and their alkyl derivatives, with remarks on the constitution of aconitic acid: H. **Rogerson** and J. F. **Thorpe.**—Aromatic sulphonium bases: S. **Smiles** and R. **Le Rossignol.** Two methods of preparing aromatic sulphonium bases are described, (1) from a sulphoxide and phenetole with a dehydrating agent, (2) from a sulphinic acid and phenetole with strong sulphuric acid.—A new form of calcium chloride tube for combustion: A. E. **Hill.** This tube is described and illustrated in the current number of the Proceedings of the Chemical Society, 1906, xxii., 87.—The viscosity of liquid mixtures, part iii.: A. E. **Dunstan.**—The action of phenylpropiolyl chloride on the ketonic compounds, part ii.: S. **Ruhemann.**

Paris.

Academy of Sciences, March 26.—M. H. Poincaré in the chair.—The methods used in the search for luminous particles mixed with the gas of the chromosphere and the solar protuberances. Application during the eclipse of 1905: H. **Deslandres.** The lines due to the gases are readily observed, but the continuous spectrum due to the presence of liquid or solid particles is much more difficult to recognise. The author attacked this problem during the last eclipse, making use of coloured screens to remove the gaseous radiations. A preliminary account of the results is given.—Observations on Gennadas: E. L. **Bouvier.** The author draws the following conclusions from his work in this and a preceding paper on the same subject: the Gennadas are clearly bathypelagic, and do not descend to live at great depths; they do not rise to the surface for reproduction, and are derived from Benthesicymus by adaptation to a bathypelagic existence.—Quasi-waves of shock in the midst of a fluid which is a good conductor of heat: P. **Duhem.**—The Oligocene basin of Ebro and the Tertiary history of Spain: Ch. **Depéret** and L. **Vidal.**—The total eclipse of the sun of August 30, 1905; solar protuberances of two colours: J. **Esquirol.**—A magic square: G. **Tarry.**—The theory of characteristics: E. **Goursat.**—Discontinuous ensembles: L. **Zoretti.**—The development of non-integrable functions in trigonometrical series: P. **Fatou.**—Hyperelliptic surfaces defined by intermediate singular functions: Louis **Remy.**—The deformation of the metals of a railway: G. **Cuénot.**—A mode of construction of aëroplanes allowing of an increase, in notable proportions, of their sustaining power: E. **Seux.**—The evaluation of the power of microscopic objectives: L. **Malassez.**—The variations of the absorption bands of a crystal in a magnetic field: Jean **Becquerel.** The spectrum of xenotime, a uniaxial crystal giving fine absorption bands, was obtained with a Rowland grating, and the effect of placing the crystal in a magnetic field examined. The resulting displacement of some of the bands was much greater than would be expected from the magnitude of the ordinary Zeeman effect in metallic vapours.—Gaseous osmosis through a colloidal membrane: Jules **Amar.** A perfectly dry colloidal membrane is impermeable to carbon dioxide; the gas diffuses through only when the membrane is moist, and the amount diffused diminishes progressively as the membrane dries.—A contribution to the study of the intermittent discharge: G. **Millochau.**—New researches on bulbs producing X-rays: M. **Nogier.**—The use of the Cooper-Hewitt lamp as a source of monochromatic light: Ch. **Fabry** and H. **Buisson.** This mercury arc lamp, which is now made commercially, gives a light of uniform intrinsic lustre. The yellow and green rays are so fine as to give interference phenomena with a difference of path of 22 cm., that is to say, of an order of about 490,000. The yellow rays give particularly fine results.—The isolation and some atomic characters of dysprosium: G. **Urbain.** The author has isolated 50 grams of an earth the spectral characters and atomic weight of which show such constancy among the different fractions that it is impossible to imagine that it is a mixture. Details of the methods of separation used and the spectrum observed are given.—The commercial preparation of calcium hydride: Georges F. **Jaubert.** The product, as put on the

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